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ABSTRACT

The diagnostic potential of a structured cloze test used in the reading measure of the New York State Regents Competency Testing Program was examined. Two passages at the third and fifth grade levels were administered to 12 low achieving fifth grade students, first in a standardized cloze format requiring the students to generate responses and next in a structured cloze format requiring the recognition of the correct response. Results indicated that both recognition tasks produced higher mean scores than the generation tasks. The analysis of types of context cues indicated that repetition resulted in the highest percentage of correct responses with the recognition task. The third grade passage contained fewer transition words to signal relationship, which may partially explain the comparable performances even though the passages represented different readability levels. (MKN)

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AN INTROSPECTIVE ANALYSIS OF CONTEXT CUES
EMPLOYED IN A CLOZE TEST

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Competency testing programs have been instituted by various state and local educational agencies as a means of evaluating student capabilities and curriculum effectiveness. The greatest impact of such testing has been and will continue to be felt by low achieving students. As a result of competency programs, curriculum will be re-evaluated and re-directed. In reading, this is especially true in the intermediate and secondary grades where comprehension and adult reading tasks are now receiving renewed emphasis.

New York State has instituted the Regents Competency Testing Program (1978) in reading, writing and mathematics. The reading instrument (Koslin, 1979) uses a structured cloze procedure of seven deletions per paragraph with a multiple choice recognition format. Test results are used not only as a graduation requirement but also as a basis for curriculum modification. Teachers are encouraged to analyze test performance to determine some of the strengths and weaknesses of individual students (Administrators Manual, 1979). Since the test reflects a psycholinguistic view of the reading process, teachers have begun to evaluate student performance in relationship to paragraph structure (Meyer, 1979), multiple meanings of words (Mason, Kniseley and Kendall, 1979) and contextual clues (Cooper and Petrosky, 1976; Miller and Isakson, 1978; Targesen, 1977).

This paper will focus on the diagnostic potential of a structured cloze test (Regents Competency Testing Program, 1978) when used with low achieving students in the fifth grade. Data for this study were generated using an interview technique to address several questions: 1) do poor readers evidence use of context clues across sentences? 2) what relationship exists between generated word choices and recognized word choices on a cloze task? and 3) are low achieving students capable of describing the metalinguistic process they engage in to identify word choices?

Since this study analyzed aspects of the metalinguistic abilities of only low achieving students, differences between good and poor readers reflect important distinctions. In summarizing the research contrasting good and poor comprehenders, Sullivan (1978) stated that good comprehenders appear more flexible in interpreting and transposing information. Such findings parallel Pearson's observations (1974-74) that good comprehension requires a synthesizing process to organize the structural elements in sentences. Guthrie and Tyler (1976) reported that poor readers do not recall the same amount of information through semantic and syntactic processing with either a listening or reading task when compared to good readers.

By definition, poor readers differ from good readers in their decoding speed and accuracy (Guthrie and Tyler, 1976). However, inter- and intra-sentential processing differences between good and poor readers have not been fully explored. Taylor (1979) reported that poor readers' comprehension was lower with unfamiliar material at the inter-sentence level when their lack of prior experience restricted their ability to decode and encode the intended message. Myers and Paris (1978) found age related differences in the metacognitive knowledge of eight

and twelve year old children in the recognition of the semantic structure of paragraphs. Although this study did not compare good and poor readers directly, they did find that many of their sixth grade subjects experienced difficulty resolving and explaining comprehension problems.

At the intra-sentence level, Isakson and Miller (1976) investigated the performance of good and poor readers in the fourth grade. Their data support the notion that poor readers are less disturbed by syntactic and semantic violations at the sentence level than good readers who demonstrated an increasing number of errors with violations. Cromer (1970) also reported that from students equivalent on vocabulary ability, one group revealed a low level of comprehension which he interpreted to result from problems integrating the meaning of words across a sentence. Perfetti and Goldman (1976) found differences in the ability to recall factual information within complex sentences when comparing good and poor readers.

These studies demonstrated differences between the processing abilities of good and poor readers within and across sentences. These differences may, in part, separate fluent from non-fluent reading (Cooper and Petrosky, 1975). However, these studies employed good and poor readers in elementary grades. The question arises if these differences reflect age characteristics or performance characteristics. In other words, do low achieving adults evidence similar characteristics in the comprehension process as elementary subjects?

Raisner (1978) studied low functioning adults and concluded from her data that they produced many text variations and demonstrated a poor understanding of syntactic and semantic cues across sentences. Yekovick and Walker (1976) investigated the ability of adults to identify and use referents in comprehending multiple sentences. They found

that adults with higher reading ability were more capable of identifying and using repeated nouns to achieve comprehension than those with lower reading abilities. Ashley and Fritzen's data (1980) revealed good readers recalled more idea units and had more accurate evaluations of prose passages than poorer readers. Such findings support Thorndyke's (1977) belief that cognitive structures greatly influence comprehension processing and recall. These studies demonstrated that poorer adult readers evidence text deviations, lack of understanding for syntactic and semantic cuing, and lower recall when compared to good readers.

When combining the studies contrasting performances of good and poor readers at different ages and achievement levels, several differences in comprehension processing abilities were observed. By using a structured cloze task, two problems in processing and integrating may be evident: first, how subjects arrive at a satisfactory answer either by generating the response or by recognizing it from among a set of choices that are provided; and second, how subjects describe the metalinguistic process used in arriving at an answer. At the sentence level, some data demonstrated that the integration process necessary to achieve a representation of sentence meaning is initiated when the reader reaches a structural unit within a sentence (Isakson, 1979). However, the experimental passages with the cloze task were designed to ensure inter-sentence processing (Koslin, 1979).

In summary, this study focused on information derived from interviewing low functioning readers in the fifth grade who were asked to supply words for a cloze task using two passages. This investigation analyzed words generated and recognized by subjects and their ability to describe a metalinguistic process of selected words based on three types of context cues. The data were also analyzed to reflect differential performances across types of context cues.

METHOD

Twelve fifth grade students from a New York State suburban school district were selected from a pool of students participating in a remedial reading program. Each subject had received the California Test of Basic Skills and performed one or more years below grade level. Their total scores ranged from a grade equivalence of 2.4 to 4.5 for the five girls and seven boys selected for the study.

Testing took place individually in a separate room using a six step procedure. Each student:

1. silently read the entire passage;
2. stated the topic of the passage in one or two words;
3. stated the main idea of the passage in one sentence;
4. identified a word for each of seven deletions;
5. identified the words and sentences which lead them to select that particular word for each deletion;
6. identified, from among five choices, the most appropriate word choice for each deletion.

In essence, each student stated a topic and main idea for each passage, generated a word for each of seven deletions, justified the choice based on context cues and, finally, recognized the most appropriate choice from among a set of options for each deletion. In addition, students were asked to indicate the level of confidence for their generated and recognized word choices. It was hypothesized that the clearer, more explicit cuing would result in higher confidence levels. Subjects used a 1 (low) to 4 (high) scale of confidence.

Two 300 word passages used in this study were drawn from a structured cloze test (Koslin, 1979) used in the Regent's Competency Testing Program. Based on the Bormuth (1968) readability formula, the passages were estimated to be at the third (Rain Forests) or fifth (Pacific Salmon) grade reading levels. Each passage had seven deletions and a fine option choice for each deletion. The sets of options were printed on a separate page and shown to the subjects only after they had generated a word for each deletion. The use of the set of options represents the recognition phase of this study.

The study data were generated by interviewing the students and were analyzed for the total score of correct responses for each passage, the score for generated responses, and the score for recognized responses.

RESULTS

The mean scores and percentage of correct responses for both passages were displayed in Table 1. Out of a possible score of seven for each passage, the mean scores demonstrate comparable performances across both passages even though the passage on PACIFIC SALMON represented a higher level of readability. This lack of difference in performance may indicate that the readability formula (Bormuth, 1968) was insensitive to important features of language necessary for comprehension (Meyer, 1977). However, as expected, the data emphasized that generating a correct response was more difficult than recognizing a correct response. The generated response was scored on an exact replacement basis for this analysis.

Table 1 also reflected data on confidence levels, identified topics and main ideas. On a scale of one (low confidence) to four (high confidence), the students were asked to estimate their confidence in their generated and recognized word choices. This scale was used to provide

some indication of the number and accuracy of language cues used by the student in selecting a response. The data indicated a higher level of confidence (mean of 1.7) with generated answers on the passage RAIN FOREST compared to PACIFIC SALMON. With both passages, a higher confidence level was expressed with the recognized word choices.

The statement of a topic and main idea was evaluated on a four point scale ranging from zero (off the subject of passage) to three (accurate statement). The mean scores demonstrated a higher ability for statement of the passage topic (2.7 and 2.3) than for stating the main idea of the passage (1.6 and 2.4).

The analysis of responses by type of context clue was displayed in Table 2. Halliday and Hasan (1975) identified three semantic relationships operating across passages: repetition, logical conjunction and substitution. The prominent cuing pattern was judged to be repetition if a word necessary to arrive at the deleted word was repeated. The cohesion tie was judged to be one of logical conjunction if identification of the deleted word depended on the reader recognizing the logical relationship among surrounding context. Substitution represented a part-whole relationship or categorization task.

The data indicated that for generated responses with the third grade passage, the lowest level of accuracy occurred with the conjunction clues but with the fifth grade passage, conjunction clues resulted in the highest performance. With the recognition task, repetition clues resulted in the highest level of correct responses with both passages. The data also revealed wider variations in response among context cue types with generated word choices, as would be expected.

The interviews revealed that low functioning students had difficulty expressing the metalinguistic process used to identify the words and

sentences which clued their generated and recognized word choices. Students frequently selected the sentence immediately preceding the deletion. This pattern disregarded the repetition of words and the multiple statement of class words leading to the deletion of a category word with substitution cues. Subjects also evidenced a lack of semantic encoding since most explanations of context cues were exact word restatements rather than a paraphrasing.

Following an incorrect word choice, responses from the students were generally consistent. The inflexibility of reasoning patterns and inability to transpose information noted by Sullivan (1978) was demonstrated repeatedly. When students discussed reasons for selecting a choice (incorrect), they frequently fabricated an explanation not justified in the text (Raisner, 1978) and appeared incapable of re-adjusting their interpretation even when discussing the correct word choice.

In general, the results of the interview phase of this study revealed that low functioning students were not experienced in justifying their selected answers. They appeared inflexible, linking their interpretations to one set of factors or to one meaning of a word (Mason, Kniseley and Kendall, 1979). Their ability to comprehend appeared to be dominated by their previous experience with recognition tasks which reduced their sensitivity to metalinguistic processing.

CONCLUSION

The study focused on the diagnostic potential of a structured cloze test. Using low functioning fifth grade subjects (N=12), two passages at the third and fifth grade levels were administered first in a standard cloze format requiring the student to generate responses and next in a structured cloze format requiring a recognition of the correct response. As expected, the recognition task produced higher mean scores than the generation task.

The analysis of types of context cues indicated that repetition resulted in the highest percentage of correct responses with the recognition task. The third grade passage contained fewer transition words to signal relationship which may partially explain the comparable performances even though the passages represented different readability levels (Meyer, 1977).

The students frequently did not consider all possible choices, simply accepting the first choice that appeared reasonable. Efforts to analyze the reasoning process of students were difficult and non-productive since they tended to randomly select words as a cuing factor and to explain their reasoning in words drawn directly from the text rather than paraphrasing semantic meaning. The problem solving strategies of these students were ineffective even though correct answers were identified at a high percentage.

Within the limitations of this study, certain tentative conclusions are possible. Low functioning students should be provided more experience reasoning through a language process in comprehension. Such an approach may improve problem solving strategies of low achieving students. The cloze technique provided an avenue for diagnosing students ability to describe the context cluing pattern. Instruction for poorer comprehenders might also address multiple meanings of words (Mason et al, 1979), paragraph structure (Meyer, 1977) and context clues (Miller and Isakson, 1978). Further investigations in these three areas with low achieving readers are warranted.

TABLE 1

COMPARISON OF MEANS AND PERCENTAGES
OF CORRECT RESPONSES BY SUBJECTS (N=12)
FOR GENERATION AND RECOGNITION
TASKS WITH A CLOZE TEST

<u>STUDENT RESPONSES</u>	<u>MEANS AND PERCENTAGES OF CORRECT RESPONSES</u>			
	<u>RAIN FOREST (3RD)</u>		<u>PACIFIC SALMON (5TH)</u>	
	<u>GEN.</u>	<u>RECOG.</u>	<u>GEN.</u>	<u>RECOG.</u>
Means (1-7 range)	2.45	5.60	2.38	5.60
Percentages	35%	80%	34%	80%
Confidence levels (1-4 range)	1.7	2.3	1.3	2.3
Topics of passages (1-4 range)	2.7		2.3	
Main ideas statements (1-4 range)	1.6		2.4	

TABLE 2

PERCENTAGE OF CORRECT RESPONSES
BY TYPES OF CONTEXT CUES
ON GENERATION AND
RECOGNITION TASKS

<u>TYPES OF CONTEXT CLUES</u>	<u>PERCENTAGE OF CORRECT RESPONSES</u>			
	<u>RAIN FOREST (3RD)</u>		<u>PACIFIC SALMON (5TH)</u>	
	<u>GEN.</u>	<u>RECOG.</u>	<u>GEN.</u>	<u>RECOG.</u>
Repetition (N=3)	39%	92%	18%	88%
Conjunction (N=6)	26%	71%	60%	80%
Substitution (N=5)	39%	76%	24%	72%
Totals (N=14)	35%	80%	34%	80%

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